

Report Date:
21-Mar-19 10:31**Laboratory Report**
SC53852Gulf Oil L.P.
281 Eastern Avenue
Chelsea, MA 02150
Attn: Andrew P. AdamsProject: Gulf Terminal - Chelsea, MA
Project #: Gulf Chelsea

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87936
Maine # MA138
New Hampshire # 2972/2538
New Jersey # MA011
New York # 11393
Pennsylvania # 68-04426/68-02924
Rhode Island # LAO00348
USDA # P330-15-00375
Vermont # VT-11393

Authorized by:

Andrew Fenton
Quality Services Manager

Eurofins Spectrum Analytical holds primary certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.

Please note that this report contains 11 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Eurofins Spectrum Analytical, Inc.

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Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

Sample Summary

Work Order: SC53852
Project: Gulf Terminal - Chelsea, MA
Project Number: Gulf Chelsea

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SC53852-01	Outfall 003	Surface Water	10-Mar-19 18:00	12-Mar-19 15:50
SC53852-02	TB-1/-2	Trip Blank	10-Mar-19 00:00	12-Mar-19 15:50

CASE NARRATIVE:

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the reporting limit are reported as "<" (less than) the reporting limit in this report.

The samples were received 2.8 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group. If method or program required MS/MSD/Dup were not performed, sufficient sample was not provided to the laboratory.

Analyses for Total Hardness, pH, and Total Residual Chlorine fall under the state of Pennsylvania code Chapter 252.6 accreditation by rule.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

ASTM D 1293-99B

Samples:

SC53852-01 *Outfall 003*

This sample was received outside the EPA recommended holding time for the analysis specified.

pH

Sample Acceptance Check Form

Client: Gulf Oil L.P.
Project: Gulf Terminal - Chelsea, MA / Gulf Chelsea
Work Order: SC53852
Sample(s) received on: 3/12/2019

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	<u>Yes</u>	<u>No</u>	<u>N/A</u>
Were custody seals present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Were custody seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Were samples received at a temperature of $\leq 6^{\circ}\text{C}$?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples refrigerated upon transfer to laboratory representative?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were sample containers received intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples accompanied by a Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Did sample container labels agree with Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples received within method-specific holding times?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Summary of Hits

Lab ID: SC53852-01

Client ID: Outfall 003

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Total Suspended Solids	6.0		5.0	mg/l	SM2540D-11
Benzene	1		1	ug/l	SW-846 8260C

Please note that because there are no reporting limits associated with hazardous waste characterizations or micro analyses, this summary does not include hits from these analyses if included in this work order.

Sample Identification**Outfall 003**

SC53852-01

Client Project #

Gulf Chelsea

Matrix

Surface Water

Collection Date/Time

10-Mar-19 18:00

Received

12-Mar-19

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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General Chemistry Parameters

pH	6.99	HT2,pH	pH Units				1	ASTM D 1293-99B	12-Mar-19 14:15	12-Mar-19 14:15	ABW	1900316	X
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Subcontracted AnalysesSubcontracted AnalysesPrepared by method SW-846 5030C*Analysis performed by Eurofins Lancaster Laboratories Environmental - M-PA009*

71-43-2	Benzene	1		ug/l	1	0.2	1	SW-846 8260C	19-Mar-19 16:37	19-Mar-19 16:38	M-PA009/190781A		
64-17-5	Ethanol	< 280		ug/l	750	280	1	"	"	"	"	"	
1634-04-4	Methyl Tertiary Butyl Ether	< 0.2		ug/l	1	0.2	1	"	"	"	"	"	
91-20-3	Naphthalene	< 1		ug/l	5	1	1	"	"	"	"	"	

Surrogate recoveries:

17060-07-0	1,2-Dichloroethane-d4	101			80-120 %			"	"	"	"	"	
460-00-4	4-Bromofluorobenzene	92			80-120 %			"	"	"	"	"	
1868-53-7	Dibromofluoromethane	96			80-120 %			"	"	"	"	"	
2037-26-5	Toluene-d8	100			80-120 %			"	"	"	"	"	

Subcontracted AnalysesPrepared by method SW-846 3510C*Analysis performed by Eurofins Lancaster Laboratories Environmental - M-PA009*

50-32-8	Benzo(a)pyrene	< 0.01		ug/l	0.05	0.01	1	SW-846 8270D SIM	17-Mar-19 14:30	19-Mar-19 09:09	M-PA009074WAD0		
91-20-3	Naphthalene	< 0.03		ug/l	0.08	0.03	1	"	"	"	"	"	

Surrogate recoveries:

38072-94-5	1-Methylnaphthalene-d10	81			52-119 %			"	"	"	"	"	
63466-71-7	Benzo(a)pyrene-d12	69			46-112 %			"	"	"	"	"	
93951-69-0	Fluoranthene-d10	87			61-117 %			"	"	"	"	"	

Subcontracted AnalysesPrepared by method E1664A*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*

Oil and Grease by EPA 1664A	< 1.6	mg/l	1.6	1.6	1.1	E1664A	15-Mar-19 08:32	15-Mar-19 08:32	M-CT007 470372A		
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Prepared by method SM2540D-11*Analysis performed by Phoenix Environmental Labs, Inc. * - MACT007*

Total Suspended Solids	6.0	mg/l	5.0	5.0	1	SM2540D-11	14-Mar-19 07:47	14-Mar-19 07:47	M-CT007 470209A		
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Sample Identification

TB-1/-2

SC53852-02

Client Project #

Gulf Chelsea

Matrix

Trip Blank

Collection Date/Time

10-Mar-19 00:00

Received

12-Mar-19

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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Subcontracted AnalysesSubcontracted AnalysesPrepared by method SW-846 5030C*Analysis performed by Eurofins Lancaster Laboratories Environmental - M-PA009*

71-43-2	Benzene	< 0.2		ug/l	1	0.2	1	SW-846 8260C	19-Mar-19 11:25	19-Mar-19 11:26	M-PA009/190781A		
64-17-5	Ethanol	< 280		ug/l	750	280	1	"	"	"	"	"	"
1634-04-4	Methyl Tertiary Butyl Ether	< 0.2		ug/l	1	0.2	1	"	"	"	"	"	"
91-20-3	Naphthalene	< 1		ug/l	5	1	1	"	"	"	"	"	"

Surrogate recoveries:

17060-07-0	1,2-Dichloroethane-d4	97			80-120 %			"	"	"	"	"	"
460-00-4	4-Bromofluorobenzene	92			80-120 %			"	"	"	"	"	"
1868-53-7	Dibromofluoromethane	96			80-120 %			"	"	"	"	"	"
2037-26-5	Toluene-d8	99			80-120 %			"	"	"	"	"	"

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<u>ASTM D 1293-99B</u>										
Batch 1900316 - General Preparation										
<u>Reference (1900316-SRM1)</u>					<u>Prepared & Analyzed: 12-Mar-19</u>					
pH	6.01		pH Units		6.00		100	97.5-102.5		
<u>Reference (1900316-SRM2)</u>					<u>Prepared & Analyzed: 12-Mar-19</u>					
pH	6.05		pH Units		6.00		101	97.5-102.5		

Subcontracted Analyses - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<u>SW-846 8260C</u>										
Batch W190781AA - SW-846 5030C										
<u>LCS (LCSW10Q)</u>					<u>Prepared & Analyzed: 19-Mar-19</u>					
Benzene	22		ug/l	1	20		108	80-120		
Ethanol	330		ug/l	750	500		66	31-180		
Methyl Tertiary Butyl Ether	22		ug/l	1	20		108	69-122		
Naphthalene	20		ug/l	5	20		102	53-124		
Surrogate: 1,2-Dichloroethane-d4	50		ug/l		50		99	80-120		
Surrogate: 4-Bromofluorobenzene	48		ug/l		50		96	80-120		
Surrogate: Dibromofluoromethane	48		ug/l		50		95	80-120		
Surrogate: Toluene-d8	51		ug/l		50		103	80-120		
<u>LCSD (LCSW10Y)</u>					<u>Prepared & Analyzed: 19-Mar-19</u>					
Naphthalene	21		ug/l	5	20		105	53-124	2	30
Benzene	22		ug/l	1	20		111	80-120	3	30
Ethanol	320		ug/l	750	500		64	31-180	2	30
Methyl Tertiary Butyl Ether	22		ug/l	1	20		110	69-122	2	30
Surrogate: Toluene-d8	51		ug/l		50		102	80-120		
Surrogate: 1,2-Dichloroethane-d4	49		ug/l		50		97	80-120		
Surrogate: Dibromofluoromethane	47		ug/l		50		95	80-120		
Surrogate: 4-Bromofluorobenzene	48		ug/l		50		96	80-120		
<u>Blank (VBLKW10B)</u>					<u>Prepared & Analyzed: 19-Mar-19</u>					
Benzene	< 0.2		ug/l	0.2			-			
Ethanol	< 280		ug/l	280			-			
Methyl Tertiary Butyl Ether	< 0.2		ug/l	0.2			-			
Naphthalene	< 1		ug/l	1			-			
Surrogate: 1,2-Dichloroethane-d4	50		ug/l		50		99	80-120		
Surrogate: 4-Bromofluorobenzene	46		ug/l		50		91	80-120		
Surrogate: Dibromofluoromethane	48		ug/l		50		95	80-120		
Surrogate: Toluene-d8	50		ug/l		50		100	80-120		
<u>SW-846 8270D SIM</u>										
Batch 19074WAD026 - SW-846 3510C										
<u>LCS (074WDLCSQ)</u>					<u>Prepared: 17-Mar-19 Analyzed: 19-Mar-19</u>					
Benzo(a)pyrene	0.9		ug/l	0.05	1		94	71-112		
Naphthalene	0.8		ug/l	0.08	1		80	55-110		
Surrogate: Benzo(a)pyrene-d12	0.8		ug/l		1		83	46-112		
Surrogate: 1-Methylnaphthalene-d10	0.9		ug/l		1		85	52-119		
Surrogate: Fluoranthene-d10	1		ug/l		1		95	61-117		
<u>LCSD (P4WDLCSY)</u>					<u>Prepared: 17-Mar-19 Analyzed: 19-Mar-19</u>					
Naphthalene	0.7		ug/l	0.08	1		68	55-110	17	30
Benzo(a)pyrene	0.9		ug/l	0.05	1		89	71-112	6	30
Surrogate: Fluoranthene-d10	0.9		ug/l		1		89	61-117		
Surrogate: Benzo(a)pyrene-d12	0.8		ug/l		1		75	46-112		
Surrogate: 1-Methylnaphthalene-d10	0.7		ug/l		1		72	52-119		
<u>Blank (SBLKWD074B)</u>					<u>Prepared: 17-Mar-19 Analyzed: 19-Mar-19</u>					
Benzo(a)pyrene	< 0.01		ug/l	0.01			-			
Naphthalene	< 0.03		ug/l	0.03			-			
Surrogate: 1-Methylnaphthalene-d10	0.9		ug/l		1		85	52-119		
Surrogate: Benzo(a)pyrene-d12	0.9		ug/l		1		87	46-112		
Surrogate: Fluoranthene-d10	1		ug/l		1		100	61-117		

Subcontracted Analyses - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<u>E1664A</u>										
Batch 470372A - E1664A										
<u>Blank (CC65925-BLK)</u>				<u>Source: CC65925</u>		<u>Prepared & Analyzed: 15-Mar-19</u>				
Oil and Grease by EPA 1664A	< 1.4		mg/l	1.4	40	BRL	-			
<u>LCS (CC65925-LCS)</u>						<u>Prepared & Analyzed: 15-Mar-19</u>				
Oil and Grease by EPA 1664A	38.80		mg/l	1.4	40		97	85-115		20
<u>SM2540D-11</u>										
Batch 470209A - SM2540D-11										
<u>Blank (CC66474-BLK)</u>				<u>Source: CC66474</u>		<u>Prepared & Analyzed: 14-Mar-19</u>				
Total Suspended Solids	< 5.0		mg/l	5.0	32.2	BRL	-			
<u>LCS (CC66474-LCS)</u>						<u>Prepared & Analyzed: 14-Mar-19</u>				
Total Suspended Solids	30.00		mg/l	5.0	32.2		93	85-115		

Notes and Definitions

HT2	This sample was received outside the EPA recommended holding time for the analysis specified.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
OG	The required Matrix Spike and Matrix Spike Duplicate (MS/MSD) for Oil & Grease method 1664B can only be analyzed when the client has submitted sufficient sample volume. An extra liter per MS/MSD is required to fulfill the method QC criteria. Please refer to Chain of Custody and QC Summary (MS/MSD) of the Laboratory Report to verify ample sample volume was submitted to fulfill the requirement.
pH	The method for pH does not stipulate a specific holding time other than to state that the samples should be analyzed as soon as possible. For aqueous samples the 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous pH samples not analyzed in the field are considered out of hold time at the time of sample receipt. All soil samples are analyzed as soon as possible after sample receipt.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

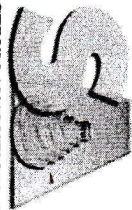
Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.



SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

- ☒ Standard TAT - 7 to 10 business days
☐ Rush TAT - Date Needed: _____
All TATs subject to laboratory approval
Min. 24-hr notification needed for rushes
Samples disposed after 60 days unless otherwise instructed.

Report To: Andrew Adams

Gulf Oil LP

281 Eastern Ave

Chelsea, MA 02150

Telephone #:

617.884.5980

Project Mgr:

Andrew Adams

Invoice To: Christopher Gill

Gulf Oil LP

80 William St, Suite 400

Wellesley, MA 02481-3705

P.O. No.:

Quote/RON:

Project No:

Site Name:

Location:

Sampler(s):

Gulf Chelsea

Gulf Chelsea Terminal

281 Eastern Ave, Chelsea

State: MA

F=Field Filtered 1=Na₂S₂O₃ 2=HCl 3=H₂SO₄ 4=HNO₃ 5=NaOH 6=Ascorbic Acid
7=CH₃OH 8=NaHSO₄ 9=Deionized Water 10=H₂PO₄ 11=none 12=

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water

O=Oil SO=Soil SL=Sludge A=Indoor/Ambient Air SG=Soil Gas

X1= X2= X3=

G=Grab

C=Compsite

Lab ID:

Sample ID:

Date:

Time:

Type

Matrix

of VOA Vials

of Amber Glass

of Clear Glass

of Plastic

TSS, pH

O&G

VOCs (see notes for list)

PAH (benz(a) pyrene & naphthalene)

Check if chlorinated

MA DEP MCT CAM Report? ☐ Yes ☐ No
CT DPH RCP Report? ☐ Yes ☐ No
Standard ☐ DQA* ☐ ASP A* ☐ ASP B* ☐ NU Reduced* ☐ NU Full* ☐ Tier II* ☐ Tier IV*
Other: _____
State-specific reporting standards: _____

VOCs: benzene, naphthalene,

MTBE, and ethanol

Required M.L.s:

benzene 2 µg/L

naphthalene 5 µg/L

benzo(a)pyrene 0.1 µg/L

Relinquished by:

Received by:

Date:

Time:

Temp °C

☐ EDD format:

E-mail to: aadams@gulfoil.com, cgill@gulfoil.com, and

jennifer.atkins@aecom.com

Condition upon receipt:

Custody Seals:

☐ Present ☐ Intact ☐ Broken

☐ Ambient ☐ Iced

☒ Refrigerated

☐ DI VOA Frozen ☐ Soil Jar Frozen

Batch Summary

1900316

General Chemistry Parameters

1900316-SRM1

1900316-SRM2

SC53852-01 (Outfall 003)

19074WAD026

Subcontracted Analyses

074WDLCSQ

P4WDLCSY

SBLKWD074B

SC53852-01 (Outfall 003)

470209A

Subcontracted Analyses

CC66474-BLK

CC66474-LCS

SC53852-01 (Outfall 003)

470372A

Subcontracted Analyses

CC65925-BLK

CC65925-LCS

SC53852-01 (Outfall 003)

W190781AA

Subcontracted Analyses

LCSW10Q

LCSW10Y

SC53852-01 (Outfall 003)

SC53852-02 (TB-1/-2)

VBLKW10B